Philippine Science High School – Main Campus
Mathematics 3
Forms of Linear Equations in Two Variables
Comparison Table

Name	Equation	Description	When this form is used	Sample Problems
General form	$Ax+By+C=0$	This form conveys the least amount of information. No intercepts or slopes are indicated which could help us visualize the graph. However, this is the only form that can represent vertical lines. (e.g. 2y + 4 = 0)	1. Equations of other forms may be required to be transformed to this form for the final answer. 2. To plot this equation, find two points that will satisfy this equation and connect the two points.	1. Plot the graph of the LETV $5x-7y+3=0$. 2. Find the general form of the equation y = -0.2x + 3.
Slope-Intercept form	$y=mx+b$	The slope and the y-intercept can easily be extracted from the equation. The slope *m* is the coefficient of x and the y-intercept is (0, *b*). This is easier to graph than the general form because the graph can be visualized before graphing.	To plot this equation, plot the y-intercept at (0, b) and use the definition of the slope to find a second point.	3. Plot the graph of the line having an equation of $y=12x-11$. 4. Find the equation of the line with a slope of -2 and passes through (0, -5). Plot this line.
Point-slope form	$y-y_1=m(x-x_1)$	This form is derived from the formula of the slope.	This form is usually used if the equation is not given, but instead must be derived from a given slope and a given point on the line.	5. Find the equation of a line that passes through (-3, 6) and has a slope of -3. Plot this line.
Two-point form	$y-y_1=\left(\frac{y_2-y_1}{x_2-x_1}\right)(x-x_1)$	This form is derived from the point-slope form where the slope is replaced by its formula.	This form is usually used if the equation is not given, but instead must be derived from two given points on the line.	6. Find the equation of a line that passes through both (4, 2) and (-1, -2). Determine the slope and the x- and y-intercepts.
Intercept form	$\frac{x}{c}+\frac{y}{b}=1$	This form is derived from the two-point form, and where (0, *b*) and (*c*, 0) are the y- and x-intercepts, respectively. This form cannot be used to represent vertical or horizontal lines, or lines that pass through the origin.	This form is usually used if the equation is not given, but instead must be derived from the two given intercepts.	7. Find the general form of the equation of the line whose x- and y-intercepts are (3,0) and (0, -2) respectively.